



CALIFORNIA GARDEN

IN THIS NUMBER

SUCCULENTS

By Eric Walther

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No. 12

SUCCULENTS

By Eric Walther

Meeting of San Francisco branch of Cactus and Succulent Society of America, in Auditorium of California Academy of Sciences, Golden Gate Park, San Francisco, March 9, 1929.

Part I.

The fashion of growing succulent plants in our gardens really is nothing new, this class of plants having found favor with gardeners several times during the last 200 years in Europe, and even in California they have long been appreciated by some of the more discriminating plantmen, our friend Charles Abraham for instance having grown succulents almost ever since he started in business here, a matter of at least 40 years ago or so.

The recent fad of "decorating" our rooms with a bowl of prickly cacti seems to be passing, and its final death will scarcely be mourned by anyone, except perhaps by some ruthless collectors and businesslike florists. These may miss a chance to coin some easy money, but really, no lasting benefit either in the way of increased horticultural knowledge or esthetic enjoyment on the part of the purchaser can ever have resulted from this wholesale transplantation of desert-cacti into the entirely different surroundings of our drawing rooms. That most of these things very promptly proceeded to die, usually as the consequence of excess moisture and shade, was really no great loss.

Nevertheless the cultivation of succulents, intelligently selected for the purpose, both constitutes a fascinating pursuit for the amateur gardener, whether he has at his disposal an acre of ground, a small backyard or merely a windowshelf, as well as supplies a wealth of plant-material for the purpose, previously discussed elsewhere, of making our gardens more permanently interesting to their owners by giving them something new to admire every day. Very little knowledge really is needed for the successful cultivation of succulents, and their slight requirements are readily supplied by anyone with any feeling at all for plants.

Without going any deeper into the matter of cultural requirements at present, it may be opportune to call attention to the fact that there are many other kinds of succulent plants

besides Cacti, the last term being more appropriately reserved for the family *Cactaceae* only. This family no doubt contains many interesting, bizarre and perhaps even beautiful things, but for inclusion into the average garden, especially here in San Francisco, they are only rarely sufficiently successful to recommend their extensive cultivation to anyone except the specializing amateur. They strike too loud and arresting a note to make them fitting associates for the shrubs and herbs commonly inhabiting our gardens, but especially objectionable must always remain the attempt to incorporate them into rock gardens, making them companions of various alpine plants. This is more than a mere error of design, as, besides doing violence to the natural feeling of fitness, it attempts to associate plants of entirely different cultural requirements. Most Cacti are desert plants, preferring or rather insisting on a warm, yet, hot situation, and while appreciating moisture during their growing season, are very impatient of excess dampness during their resting period, whereas most rock-plants thrive in cool and moist, if sunny, locations.

The succulent habit has been developed in quite a number of families of flowering plants other than the *Cactaceae*, usually as a response to a, at least periodically, dry location or habitat. Compelled to economize with the little available moisture this class of plants has acquired special water-storing tissues, as well as a more or less thickened epidermis, with leaves often reduced in size or even totally lacking. It is this thickening of the plant-body for water storage that has given rise to the name "Succulents" or fleshy plants.

Of the various families containing one or more succulent genera a few of the more important ones may be shortly mentioned here. Of the *Euphorbiaceae*, containing as principal succulent genus *Euphorbia*, little is to be hoped for here locally, as most species are too tender for us, with the exception of perhaps *E. caput-medusae*. The same holds good also of *Anacampseros* and *Portulacaria* of the *Portulacaceae*, but more useful will be found *Portulaca*, *Lewisia* and *Calandrinia*, even though hardly

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to be classed with succulents. In the **Compositae**, or Daisy family, we have **Othonna** and **Kleinia**. The Pineapple family, or **Bromeliaceae**, gives us **Puya**, **Dyckia**, **Hechtia** and **Rhodoschys**. Of the **Asclepiadaceae** both **Stapelia** and **Sarcostemma** are only doubtfully hardy out-of-doors here. The **Amaryllis** family, with **Agave** and **Fourcroya**, is more promising, but in the **Liliaceae** we have a host of promising species in the genera **Aloe**, **Gasteria**, **Haworthia**, **Apicra**, **Yucca**, etc. Of special interest for our purpose must also be considered **Mesembrianthemum**, formerly treated as one genus of the **Aizoaceae**, but now split up into numerous genera by the systematic botanists having made a special study of the subject. While something like this no doubt was inevitable in view of the increased knowledge of floral and fruit-structure now available, it remains yet to be seen, though, just how far this creation of as many as 100 new genera in place of the one old genus is justified; and does not represent mere hair-splitting never to be accepted by the practical horticulturist. After all, convenience in use is the only final test of such matters, and it must be said that quite a few of the new genera are founded on very obscure characters, making their recognition very difficult. The subject is certainly extremely interesting and deserves to be discussed further, in more detail, at some other time.

This leaves one more succulent family for our consideration, the **Crassulaceae**, including, besides the familiar **Hen** and **Chickens**, a host of desirable and ornamental, as well as interesting things, treatment of which shall have to be deferred for a future issue.

Part II. Crassulaceae

In our previous remarks succulents in general were dealt with, leaving for further, detailed discussion at this time the **Crassulaceae**, best typified perhaps by the familiar genera **Sedum** and **Echeveria**. Fortunately most members of this family are easily cultivated, being quite at home in gardens throughout the state, and usually lend themselves quite readily to incorporation into the garden-design, but more especially into the rock-gardens so much in fashion at present.

Among succulents, the family is easily recognized by the carpels being usually quite distinct and free from each other, and commonly equalling in number the petals and sepals. It is in the last character that the family differs from the closely related **Saxifragaceae**, as this has as a rule fewer carpels than divisions of either floral envelope. Some of the genera of the **Crassulaceae** are difficult to de-

termine owing to the unreliability, in this family, of characters, such as the union of the petals, elsewhere reliable and important, here being of only subordinate value, and perhaps not even available for generic discrimination.

(A rough classification of the more commonly grown genera may be given as follows:

[Inclusion optional.]])

- | | |
|--|---------------------|
| 1a. Stamens as many as the petals and sepals | 2 |
| b. Stamens twice as many as petals and sepals | 3 |
| 2a. Petals free or nearly so.... | CRASSULA |
| b. Petals united to the middle or beyond | ROCHEA |
| 3a. (1) Petals free or nearly so..... | 4 |
| b. Petals mostly united to the middle or beyond | 5 |
| 4a. Flowers with parts mostly in four's or five's; leaves mostly scattered or rarely in two's or three's.... | SEDUM |
| b. Parts of flowers 6 to many; leaves mostly crowded in rosettes..... | SEMPERVIVUM |
| 5a. (3) Flowers with parts in four's.. | 6 |
| b. Flowers with parts in five's. (Cotyledon) | 7 |
| 6a. Calyx inflated, shortly 4-lobed.... | BRYOPHYLLUM |
| b. Calyx deeply 4-parted, not inflated | KALANCHOE |
| 7a. (5) Calyx-lobes short; plants of the old world | COTYLEDON |
| b. Calyx-lobes elongated, often as long as corolla; plants of the new world | 8 |
| 8a. Corolla strongly 5-angled..... | 9 |
| b. Corolla scarcely or not angled.... | 10 |
| 9a. Fls. to 1 inch long, usually solitary | OLIVERANTHUS |
| b. Fls. smaller, never solitary..... | ECHEVERIA |
| 10a. (8) Corolla-lobes spreading; leaves terete | STYLOPHYLLUM |
| —b. Corolla-lobes erect; leaves flat.... | DUDLEYA (3) |

Of the various genera and species the following may be mentioned here. **Crassula**, indigenous to South Africa, there has about 140 species, of which only the following 14 are known to the writer. (*C. arborescens*, *dejecta*, *falcata*, *lactea*, *lycopodioides*, *montana*, *perforata*, *perfoliata*, *portulacae*, *pseudo-lycopodioides*, *quadrifida*, *rubicunda*, *spatulata*, *tetragona*.) **Rochea** has 3 species, with its scarlet-flowered **R. coccinea** the only one generally known here, and well deserving of more frequent cultivation. The brilliancy of its flowers is due to the remarkable structure of the epidermal cells of the petals, this causing the incident rays of light to be reflected internally several times within the colored cell-sap before finally emerging, thus causing the color

to be very markedly intensified. *Bryophyllum* and *Kalanchoe* are only doubtfully hardy in our part of the state, so that we here pass on to the genus *Sedum*. This is a large genus with several, more or less well-marked, sections most of which have at various times been considered to constitute sound genera. We are fortunate in having available the excellent treatment of the cultivated species by R. Lloyd Praeger, as published in the "Journal of the Royal Horticultural Society", Vol. 46. The only thing lacking would seem to be a good, workable key, which now also has been supplied by Dr. J. A. Huber, a German specialist, and it is to be hoped that our newly formed Succulent Society will be able to keep its promise of making available translations of this, as well as other foreign works on the subject. Of a total of 151 species mentioned in Praeger's work as being grown in the gardens of Europe only about 60 are known to be cultivated here now, so that here too there is still plenty of work for the enterprising plant-introducer. Most of these species are of the easiest culture; and in most cases root readily from cuttings, even single leaves being often sufficient for production of a new plant. Some species in fact, as *S. album* for instance, need to be watched lest they become a weed and smother other, more desirable plants. It is due to this rampant habit of some species that so much confusion exists in gardens as to names, since it happens quite frequently that one of the rampant species takes possession of the place assigned to some more choice kind, only the label of the latter remaining to confuse the student.

Some difficulty has been experienced in clearly delimiting *Sedum* from *Sempervivum*, as some species of *Sedum* have as many as 6 sepals and petals, and others in habit closely resemble *sempervivum*. Nevertheless *Sempervivum* is a well marked genus, with several distinct sections, one of these comprising the well-known live-for-ever or hen-and-chickens. The common *S. tectorum* or house-leek may serve as an example of these diminutive species, and was perhaps the first of the genus to reach California. Several years ago the writer received some pieces of what turned out to be this species from Mr. C. F. Saunders, who found them originally at the Mission San Juan Capistrano; and which were undoubtedly brought by the Franciscan fathers from Spain, by way of Mexico, for their reputed medicinal virtue. *Sempervivum arachnoideum*, the cob-web house-leek, in several varieties, constitutes one of the choicest ornaments of all collections of rock-plants laying any claims to being comprehensive. A most interesting section of the genus, and most useful for California conditions, is *Aeonium*, including the shrubby kinds, mostly from the Canary Is-

lands. These are particularly at home here and an effort should be made to obtain the various choice species still unrepresented in our gardens.

The remainder of the family has in the past been mostly lumped under the collective name *Cotyledon*. It seems advisable to follow Britton and Rose in separating this certainly very heterogeneous material into several fairly well-marked groups. The name *Cotyledon* is retained for the old-world species with small calyx and cylindrical corolla, as exemplified by the familiar *C. orbiculata*. This group includes, in South Africa, several other desirable species not known here as yet, and which should repay the effort needed for their introduction. *Umbilicus*, another genus found in the Mediterranean Region and still very rare in our gardens, includes the very queer *U. pendulinus*, with stalked, peltate leaves, certainly very far removed from the popular conception of a succulent. This was noted for the first time by the writer recently in the very interesting collection of Mr. Kenne at Mill Valley.

Cotyledon of the new world is now segregated into a number of genera, of which the most important are *Echeveria* and *Dudleya*. Of these *Echeveria* is common in gardens, deriving its appellation of hen-and-chickens from the appearance of the common *E. secunda*. The genus is characterized by the sharply angled corolla, and is now thought to consist of over 60 species, as well as quite a number of garden-hybrids. These are nearly all hardy with us, being mostly indigenous to the Mexican Plateau, and are nearly all highly ornamental in either foliage, habit or flowers. Of the more desirable kinds mention must be made of *E. simulans*, with turgid, yellowish-green leaves, and a well-placed specimen, in a cleft of the rock-garden for instance, with its surrounding ring of off-spring, will serve to illustrate the useful role this type of plant may play in our gardens. The closely related *E. elegans*, with its leaves as nearly pure white as any plant can well be, is perhaps even more strikingly beautiful. A very promising new arrival locally is *E. nobilis*, its leaves suffused with a delicate rosy tint. All these are practically stemless, but the caulescent section also contains many desirable species, to mention only *E. gibbiflora* with its variety *metallica*, the latter unfortunately not quite hardy everywhere.

Dudleya is a genus so distinctly Californian that it might deserve to be considered as our State-flower perhaps more justly even than *Eschscholtzia*. It is named in honor of the late Dr. Dudley, Professor of Botany at

Stanford University, and with the exception of one or two species is not found elsewhere. A difference of opinion exists as to the exact number of admissible species, and it must be concluded that they are often recognized only with difficulty. Unquestionably there is still room for some further discriminating work for the systematic botanists, and our newly formed succulent society might be very helpful in gathering material from the type-localities, as well as in making possible observations of living material, brought together for the purpose in one place, as it is very difficult to study succulents from dried herbarium material.

It should not be thought that we advocate the indiscriminate gathering of rare plants, on the contrary we welcome the recent action of several of the Counties in the Southern part of the State in prohibiting the unregulated collection of Cacti. One of the primary aims of our society will always be the protection of wild flora, and with this note we will close for the present.

TALES OF A TRAVELER

By P. D. Barnhart

In boggy grounds, and there are plenty of them throughout the New England States, Meadow Rue—*Thalictrum cornuti* is abundant. The scape is two to six feet tall, crowned with a spike of pure white flowers, feathery in appearance, creating a scene of loveliness during July—never a one did I see in all the gardens. Two species are found in our Southland gardens: *Dipterocarpum*, a native of China, and *Polycarpum*, indigenous to the northern part of the state. The whole tribe loves moisture, therefore make feeble growth with us, because we don't give them enough water.

What shall I say about the luxuriant lilies, also abundant in the wet places of the East? Queenly in appearance, stems three to six feet tall, bearing Orange colored flowers, spotted inside with brown, the sepals recurved. The lower flowers on peduncles six inches long—which become shorter on the ascending flowers—so that the complete inflorescence is a beautiful pyramidal outline. Hundreds of these plants in some localities. A gorgeous, glorious scene, created by *Lilium Canadense*. The amazing thing is that they have escaped the attention of vandals.

A shrub of wondrous beauty known as White Fringe, because the flowers are borne on slender, drooping pedicles, in such profusion that when in full flower it has the appearance of pure white paper, delicately cut into fringe. *Chionanthus virginica* is its correct name—from the Greek—snow and flower.

I had always thought that *Coreopsis lanceolata* was an introduction from some foreign country. Great areas of the Atlantic Coast country is covered with it. Curiosity led me to look up its nativity, and then for the first time did I learn that it is one of our own. Fields of golden glory, so rich in color, so abundant in bloom, that the landscape is a scene of beauty when it is in flower. It is one of the plants of the East which adapts itself to the gardens of the West.

It was the sixth day of May that I arrived in Ithaca, N. Y. Now Ithaca is a town set on hills. In the days of the years gone by *For-sythia vividissima* was largely used in the planting scheme. It was in full flower and the shoulders of those hills were draped in a mantle of gold. This is one subject that is worthless in the gardens of this Southland below the 2500 level. But why should we worry. The *Genistas*, the *Cytisus*, the *Jasminum primulinum*, even the yellow "Jasmine" of the Carolinas of the east provide us with an abundance of flowers of yellow color.

By the way, the last named is not of the Jasmine family. It is of the tribe *Loganiaceae*, in a class by itself, named: *Gelsemium sempervirens*.

Ithica itself is a town of waterfalls, with one cascade several hundred feet long where water rushes over rocks in tumultuous, foaming torrents, to find a resting place in a placid pool at its base. As I looked at the pleasing picture; a living picture, I thought that if Southern California were endowed with a scene of so much natural beauty, our boosters would proclaim its praises from the house tops, so loudly that the sound thereof would be heard in the uttermost parts of the earth. I never heard of the town except as the location of Cornell University, and the home of Prof. L. H. Bailey.

(Concluded)

JUNE WEATHER IN SAN DIEGO

Dean Blake, Meteorologist

With June the dry season begins, and there is a complete absence of stormy, windy weather. The rainfall is negligible, and there has never been a day in San Diego with more than a quarter of an inch of rain.

High temperatures in the arid sections eastward are of daily occurrence, and contribute to night and morning cloudiness along the coast, which becomes an every day phenomenon. As a result, the daily temperature range is usually small, and the variability from day to day is only a degree or so. Temperatures below 50 are rare, and readings over 90 degrees have been made but six times since the establishment of the station in 1871.

The June and July Gardens

THE GARDEN

By Walter Birch

There are a large number of plants that if set out now will make a good showing of blooms throughout summer and fall.

Petunias are one of the most persistent bloomers and one of the easiest to raise, the singles can be had in many attractive colors including shades of pink, crimson, purple, dark blue and others, the balcony type, of drooping habit of growth, being the most popular for beds and borders. In planting be sure to give them plenty of room, setting them about eighteen inches apart. The doubles run into many beautiful shades of color and the blooms are of great size. Both singles and doubles do well with ordinary care in either full sun or partial shade.

Pentstemon is a perennial that is easily grown in any good garden soil and will bloom for many months at a time. Its pretty bell-shaped flowers in many shades of pink, red, purple and blotched and striped grow to an average height of from eighteen inches to two feet and are most attractive either as a cut flower or in the garden. Like many other flowers the size and coloring of the blooms have been greatly improved, one of the best strains being Pentstemon Gloxinoides Gentianoides "Sensation".

Set out more Asters and Zinnias, giving them both full sun and plenty of fertilizer and water and they will repay you with flowers galore in late summer. The Liliput or dwarf Zinnias are becoming increasingly popular and are very pretty as cut flowers being much like the pompon dahlias. Salmon Queen, a beautiful salmon pink is one of the best.

Don't forget a final planting of Chrysanthemums as June is one of the best planting months for these beautiful flowers, and be sure that your plants are grown from top-cuttings of good named varieties, so that you may have good flowers.

Get in some strong plants of Delphinium Bella Donna and Hybrids which will give you good spikes of beautiful flowers in many shades of blue, lavender, turquoise, sapphire and others, in the late summer and fall, and many more the following year. Delphiniums are very effective when planted near pink or yellow flowers.

Coreopsis lanceolata is another excellent perennial, particularly easy to grow and fine for either cutting or garden, grows about two feet high bearing quantities of large bright yellow flowers.

Centaurea Imperialis are valuable annuals for cut flower purposes, but are not so easy to transplant, the flowers are large and come in colors of red, deep lavender, purple and yellow.

African Marigold, set out plants now and be rewarded with large wonderful flowers, in orange and lemon colors growing from two to three feet tall and blooming during summer and fall.

Salpiglossis, beautiful annual, flowers large funnel shaped in many indescribable colors and shades of yellow, pink, purple, rose, steel blue, violet, etc., beautifully veined and pencilled, grows about eighteen inches to two feet high. Plant in a sunny location.

Sow seeds of stocks for next winter's blooming, during this month and later, these fragrant beautiful flowers are comparatively easy to grow. The Early Giant Imperial is a very early blooming stock, with long stems and large flowers with a very high percentage of doubles, the new colors being Antique Copper, Golden Rose and Elk's Pride, an intense royal purple growing to a height of twenty-four to thirty inches.

By the end of the month and later sow seeds of Cineraria, that beautiful flower that has been so wonderfully improved in size and coloring during the last few years, and which does so well during late winter and spring in shady locations.

Plant a few more gladioli bulbs for late summer blooming, and get ready to plant freesias both colored and white a little later.

If you need a beautiful climber in a sunny location plant the new Bougainvillea, Crimson Lake, or if you need a quick-growing vine that will quickly cover the side of the house or garage, try Solanum Jasminoides with its pretty foliage and white flowers.

In laying out the new grounds or if you have room in the old place, don't forget to plant an avocado tree, both for its beauty and

(Continued on Page 7)

The California Garden

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EDITORIAL

Absent Editor—An unexpected and hurried trip to Florida the latter part of April in connection with the Mediterranean Fruit Fly outbreak in that state, and which was extended to include the greater part of May, necessarily removed the Editor from active participation in "California Garden" matters during that period. Mr. John Bakkers, Assistant Editor, very ably took charge of the magazine with the result that the May and June numbers are his work.

Fruit Fly Situation—Florida has been cursed with citrus canker, hurricanes, and real estate booms in rather rapid succession, all leaving desolation and destruction of property or property values in their wake, but the fruit fly calamity bids fair in the course of time to dwarf the rest. Mediterranean Fruit Fly, about which much has already been said and written, is the most destructive insect pest of fruit in the world. Practically all varieties of fruit and many vegetables are subject to attack. Pineapples and bananas are not susceptible. The adult fly, somewhat smaller than our common house fly and beautifully marked, lays its eggs inside fruit selected for attack.

The maggots hatch from the eggs within a few days and tunnel through the fruit, causing it to drop and decay very quickly. Up to three hundred eggs may be laid by a single fly. Some fruits have been found containing scores of maggots. Under Florida conditions it is believed there will be ten or more generations annually, a generation requiring possibly thirty days.

All fruit in infested zones was either shipped out of the state before the discovery of the infestation, or has been since destroyed. Probably close to one-half million boxes of fruit have been destroyed in the eradication program. No fruit can now be grown in the infested zone, covering some two or three thousand square miles, for an indefinite period of time. The growing of certain vegetables in such localities is also forbidden under the terms of the Federal and State quarantine. Citrus growing is the one big agricultural industry of the state, although there are large quantities of vegetables produced also. No fruit or vegetables can now move from Florida even in the fly-free areas except under rigid restrictions.

A very fine Federal and State organization has been built up in Florida to fight the fly. If this pest can be eradicated, the group of men composing the organization will certainly accomplish it. Every known modern and scientific appliance or method effective in fighting such pests is being brought into action. The cost will run into the millions, but whatever the cost, the fly must be eradicated if humanly possible.

The situation is somewhat complicated by reason of large quantities of fruit, some of it undoubtedly bearing fruit fly larvae, that was shipped out of Florida to other states before the Federal quarantine took effect. Only a miracle can prevent this fruit from originating fly infestations in other fruit growing states, notably the peach sections of Georgia. To add to the difficulty confronting the fly eradication organization, there are quantities of host fruits growing wild in the swamps and timber land surrounding infested localities. If eradication is obtained, all these hosts must be searched out and destroyed as well as cultivated fruits and vegetables.

Fortunately California has had a quarantine against Florida citrus fruit for years, so there is no great or immediate possibility of the fruit fly finding its way to this state, unless perhaps, the present mania for breaking any or all laws results in someone bootlegging infested fruit, contrary to law. Our plant quarantine laws are wise and necessary and should be observed to the letter. If they are not obeyed we may, and undoubtedly will, sometime find ourselves in the unenviable position Florida now occupies.

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Impressions—Of course a traveler passing through a country for the first time always knows more about it than do the natives themselves, but be that as it may, certain definite impressions remain of this rather exceptional state. In the first place, Florida is flat, no spot being over two or three hundred feet above sea level. Imagine transplanting a Californian to such a place! Much of the central and northern part is heavily timbered, pine for the most part, while almost impenetrable cypress swamps are everywhere. Because of the abundant rainfall and lack of drainage due to the flat terrain, lakes are numerous, and many of these are exceptionally beautiful. One county, Lake, is said to have some fourteen hundred named lakes, and some unnamed in addition.

The flora is entirely different from that of California. One sees many introduced trees and plants and many natives, among the most beautiful of the latter being the laurel and willow oaks. Strangely enough no pepper trees and only a few eucalypts were observed in Florida. In the central part of the state our pepper trees appear to be unknown, although of course, it may be grown somewhere in the state. Spanish moss, an epiphyte, is everywhere on fences, wires and trees, the oaks particularly being favored hosts. Few wild flowers were seen, the almost total absence of native bloom being one of the most outstanding impressions of Florida the writer has left with him.

Florida has now a fairly good paved road system, although in most places it is not at all comparable to ours. Many of the pavings are still narrow and the roads have many sharp and unnecessary turns; at times it seemed as though the road builders actually avoided a straight road even though it could just as easily have been made. The sharp turns, of course, slow up traffic and increase the likelihood of accidents. Undoubtedly this condition will be corrected later on as it has been in California.

One of the questions frequently asked of our party of Californians in Florida was how the climate of the latter compared with ours. While we endeavored to be polite the actual truth is that there is no possible comparison. You simply cannot compare two things that are absolutely and totally dissimilar. Florida may have and probably has, a very wonderful winter climate, but the least said about the late spring, summer and fall, the better. Proof of this, if proof were needed, may be found in the long chain of enormous hotels, all closed except for a few months in the winter, that extends from Miami to Jacksonville. From all reports, however, it would appear that winter rates are high enough in these hotels so that

there is really no need for operating them more than three or four months each year.

Elsewhere in this issue appears an article by Mr. Gander, head instructor of the O'Rourke Zoological Institute. Mr. Gander and Mr. Carroll DeWilton Scott of the Natural History Society have been waging a battle of words in the daily press, relative to the newly passed County ordinance in San Diego protecting all wild flowers.

Mr. Gander takes the stand that children, picnickers, and motorists are mainly responsible for the fast disappearing wild flowers, whereas Mr. Scott blames the various grasses and weeds that have been brought here from foreign countries. We remember his highly interesting article which appeared in a recent number of California Garden entitled "Where Are the Blooms of Yesterday". Whatever the outcome of this controversy, at least a great number of people will pause to think on this subject of conservation of wild flowers.

JUNE MEETING

The regular monthly meeting of the San Diego Floral Association will be held June 18th at 7:30 p. m. in the Floral Building in Balboa Park.

The speaker of the evening will be Miss Elizabeth Fairley, who will give an illustrated lecture on "Colorful Borders and Rock Garden Plants." This promises to be a most interesting meeting, and a large attendance is requested. As this is the annual meeting reports will be given by the officers and a board of directors will be elected. Mr. Hill, Mr. White and Mr. Tracy have been appointed as nominating committee.

Refreshments will be served at the close of the meeting.

THE JUNE AND JULY GARDEN

(Continued from Page 5)

very valuable fruit. The Fuerte variety is the best for the home garden, the bearing season extending over a period of from six to eight months. And why not have an orange or lemon or both, if you have room! Spring and summer is the best season for setting out all of these trees.

Keep up the rich green of the lawn by applying some blood and bone or other good fertilizer, and don't neglect the cutting and watering, and thank the good Lord that you can get joy and exercise on your own lawn and in your own garden.

Patronize the Garden Advertisers.

AN INTERESTING AFTERNOON

On May 18 the Floral Association accepted with pleasure the kind invitation of Miss Sessions and Dr. Kumm to visit their respective gardens in Pacific Beach and those flower lovers who missed going were unfortunate, indeed. So also were the absent ones who are interested in unusual characters. I personally would rather be with an enthusiast talking about a block of wood than a prosaic person talking about the wonders of the earth. And nobody could fail to catch fire from the flames that issue from the dynamic personalities of either Miss Sessions or Dr. Kumm.

Miss Sessions never said a sentence in her life that bored anyone and Dr. Kumm is so passionately interested in his passion fruit that nobody could resist him.

It was a lovely day that we wound our way to the windswept hill where Miss Sessions has begun to fulfill her hearts desire. Her garden might well be called a botanic garden. One suspects she would rather defeat any landscaping perfection that she had in view than deny admission to any plant or tree that especially interests her. With her to paraphrase the "immortal Bill", the plant is the thing and so her garden is crowded with especially interesting things in plant life.

There is a good collection of heathers not now at their best of course, a plot of native wild things, ceanothus, matilija poppies, and others. There are ground covers of floral kinds and also many varieties of cotoneaster and prostrate junipers of which she is justly proud. There is a pergola with wisterias and an uncommon evergreen ampelopsis, an ivy with a delicate leaf, there is a sunny tiled porch with numerous bowls of cactus, there is a cactus garden with many varieties of cactus; there are all sorts of trees and shrubs, there is a glass house, and last but not least a lath house which was full of bloom and garlanded with vines, the big cherere, a hardenbergia, lovely alstromeria, the first fuchsia to be discovered, a fine thing of scarlet blossom and rich dark foliage, justicias, shade loving cacti, oh just lots of things, and on all sides one heard "What is this Miss Sessions, and what is this?" And over it all was cast the aura of her vivid whimsical fascinating personality. She is Ceres come to life again and the earth blossoms when she smiles upon it. And we blossomed too, under her radiance. As a parting gift there were cuttings of a dwarf, sweet scented geranium suitable for borders.

From the poetic heights we descended to the more utilitarian passion fruit gardens of Dr. Kumm. We were first refreshed by punch made of his fruit and then by an inspiring and glowing talk on what he terms the fruit of the Americas. He has 40 varieties and he

is endeavoring to hybridize them into a form which will have the size of the largest but most tasteless, the flavor of the smallest, and the seedless qualities of the least seedy. He experimented seven months until he perfected a jelly which would retain the unimitable flavor, and a juice that would keep. He told us many things about his experiments in the culture and his hope of interesting someone in building up a passion fruit industry. He was a government map maker whose heart began to get tricky and he refuses to sit by the sea and bemoan it so he is interesting himself in a project which is so monopolizing his thought that he forgets he has a heart when it isn't too insistent in its reminder. His enthusiasm is infectious and one hopes he may see his dreams fulfilled.—N. K. B.

A VISIT TO BEAUTIFUL GARDENS

The members and friends of the San Diego Floral Association were invited to visit the gardens of Mr. Walter S. Merrill and of Mr. Thomas Hamilton on Thursday afternoon, May 16th. Owing to a delay in the notice not nearly as many as wished were able to enjoy these two lovely gardens.

Entering Mr. Merrill's first, a wealth of bloom greeted the guests. Masses of violas, petunias, blue salvia and other beautiful plants made a blaze of color. Lippia covered paths, which are most effective led to the rose garden which is very artistically arranged in circular form, surrounded by a low cypress hedge with four trellised entrances, each with its climbing rose. Here are many beautiful and rare varieties of roses and from the garden can be seen a magnificent redwood which Mr. Payne says is the most beautiful in Southern California, also a rare species of ceanothus which blooms continuously. Mrs. Merrill and Mrs. Turner were most gracious hostesses serving delicious cakes and punch to the guests.

From here the visitors went to Mr. Hamilton's garden. This is a much older place and very beautiful. The lath house designed by Mr. Merrill is most artistic and complete in every detail, having a gorgeous view of the harbor and city. The cacti and succulents were of paramount interest, planted as they are up the slope to the look-out and down to the canyon on the other side.

All left these gardens feeling deeply indebted to the owners for the privilege of viewing these attractive places.

NEW MEMBERS AND SUBSCRIBERS

Mrs. L. B. Mills, San Diego.
Mrs. F. R. Hotchkiss, La Jolla.
Mrs. C. L. Christie, La Jolla.
A. L. Johnson, San Diego.
W. F. Beecroft, Escondido.

WHY OUR WILD FLOWERS NEED PROTECTION

Our new county ordinance No. 341 protecting all of the native wild plants of the county against picking has met with considerable opposition, chiefly from persons constituting themselves "wild flower lovers." Even the bitterest opponents of this measure must admit that some step must be taken at once if our wild flowers are not to be completely exterminated within the next few years and, until a better method for conserving and increasing our wild flower stand is brought forward, ordinance 341, drastic though it may seem, has my ardent support.

How can we seriously object to a law which secures to the landowner the property rights to the wild plant life which is growing upon his land? Is there anything wrong with a law which insists that we secure the permission of this landowner before taking or destroying his property? Surely then, the objection must apply to the protection of plants on public lands but does not the same principle apply there? Do not the public lands belong to all of the people as a unit and why should the individual be allowed to take possession of this public property without first securing the permission of the public through its empowered representative? I know that I feel as definite ownership rights to the wild flowers growing upon my land as I do to the flowers and shrubs planted about the house.

Let us consider the probable value of this law in conserving our rapidly disappearing native flora. To understand the probable results of its enforcement we must know something of the life of the wild flower, something of its method of reproducing and something of its natural enemies. A wild flower has many enemies, grazing animals in feeding upon the leaves may occasionally pull a plant out by the roots and thus cause its death; pocket gophers often eat the roots entirely from a plant, thereby cutting off its only source of food and water supply; birds, rabbits and insects feed upon the leaves and, since these act as the plant's stomach, it is thus hindered in the digestion of its food and in the building of new parts. Invading weeds and grasses crowd close about it, draining away its water supply and choking it off from the sunlight which is essential to its growth.

Of the vast number of little plants which thrust up in the springtime there are a great many which meet death in one form or another before the time comes for the opening of the pretty blossoms, which are in reality the reproducing organs of the plant. It is through these blossoms, with their various adaptations to pollination by insects, wind or other means, that the little egg cells are fertilized so that they will develop into seeds. Thus

we see that they are very vital factors in the life of the plant, especially with those species which live for but one season and have no other means of reproducing than by seed.

Most wild flower plants produce several or many blossoms and as a rule each of these blossoms produces several seeds. If a plant bears ten blossoms and each blossom produces five seeds we find that this plant, if it had no enemies, would increase fifty-fold each year but such is far from the case. There is a great army of insects, many birds, mice, rats, etc., waiting to feed upon this seed. Probably less than ten of the original fifty seeds would ever find their way into the earth so that they could germinate and form new plants when the rains come again. We have already seen something of the hazards which these plants must face.

Now let us see if picking is a vital factor in regulating the abundance of wild flowers. If we were to count the number of blossoms in a big double handful of wild flowers such as most pickers will secure before stopping, we will find that there are several hundred of them and besides in most cases a great many buds. If we figure each bouquet as containing two hundred blossoms which, I am sure, is far below the average, and if each blossom would have produced five seeds, we find then that each bouquet of wild flowers means the loss of one thousand potential seeds. Multiply this by the number of pickers who visit any patch of bright colored flowers near a traveled highway during the blooming season and the loss to these plants becomes appalling. We must remember, too, that the enemies of these wild flowers are, to a large extent, exempt from this destruction.

It seems to me that we should look upon the wild flowers of the fields as being bright gems on the altar cloth of God's first temple, the out-of-doors, and that it is sacrilegious to pick them carelessly and fling them aside when they have faded.

FRANK F. GANDER,

Head Instructor,
O'Rourke Zoological Institute.

WE GROW OUR OWN DAHLIAS

By Gladys M. Bates

People who enjoy going on hikes and trips into the country now show a tendency to stay at home and make gardens. Even in my little apartment, there is a Christmas cactus growing in a can, and it sits in a sunny window in the front room.

A year ago we lived on a farm, and that word "farm" always brings to mind the greenness of the country and the dahlias we raised.

The citrus trees grew close to the house in the front yard, and we planned that some tall flowers, such as dahlias, would be nice to cover the edge around the tree basin. The ground had been well fertilized with stable manure and was rich in nitrogen, phosphorus and potash, judging by the luxuriant growth of weeds near the basins of the trees.

My father made a fine bed and we set the bulbs in. We did not attempt to work with seedlings until later in the spring. With the eyes of the bulb at the surface of the soil, in the ring around the crown, we allowed two shoots to a single plant. After a time we broke off the weaker of the two, leaving the stronger to grow.

At the end of March, we started the seedlings in a box in the window where the sun would strike them a greater part of the day. Even in California, and the southern part of the state, we sometimes have unusual weather and a frost would undo our labors. As soon as they had made a couple of leaves, which was about three weeks after planting, we transplanted them to another box, setting them about three inches apart.

Early in the summer we transplanted them into their permanent location, and my father and I thought how well our labors had resulted. Now they could attend to themselves a great part of the time. But so much for our plans.

The birds neglected to attend to exterminating the bugs, and the small animals leered at us when we went out to see the growth on our plants. The silvery trail of the snail and the slug shone in the morning light and the tender new leaves were sadly chewed. A close inspection showed a small hard bug concealed in the heart of the new growth and under the leaves. What the name of this drab-colored creature might be, we never learned, but the names that we gave it would not do to print. I took the time and effort to pick the little drab creatures off and got a great deal of pleasure by dropping them into a can of kerosene. The ashes from the wood stove were scattered generously around the plants, doing double duty. It enriched the soil besides making it hot for the snails and slugs. It did keep them at their distance, but I had to keep picking the bugs off by hand, until the birds got busy feeding their young and took the job off my hands.

The hot sun beat down upon the ground so that constant irrigation and cultivation was necessary. My father would stand by the hour, the hoe in one hand and the watering hose in the other, while I knelt to the bugs.

Our reward came in the early fall when the dahlias burst into a beautiful assortment of blooms of all colors, sizes and single as well

as double blossoms. The stalks were tall, four to five and one-half feet in height, but the heavy blooms were breaking them down. Out in the eucalyptus grove we found sticks which we drove into the ground beside the dahlias and tied them up securely. A heavy wind from the East made us glad of the support that we had given our dahlias, while those of our neighbors were flattened to the ground.

The bees and humming birds fairly lived at our house and were out as soon as it was warm enough, whirring and humming mightily among the sweet blossoms.

MAY MEETING

The regular monthly meeting of the San Diego Floral Association was held May 21st at 7:30 p. m. in the Floral Building.

Mrs. Greer, the president, called the meeting to order. She drew the audience's attention to the record-breaking success of the Spring Flower Show, urging all to help make the Fall Show equally successful. She then announced that the bronze and silver medals which the Association has been working for for years were at last an accomplished fact and would be on exhibition at the close of the meeting.

Mr. Fox, of Escondido, Horticultural Commissioner, was the speaker of the evening. He gave a most interesting account of his horticultural experiences in Hawaii and the South Sea Islands.

Miss Sessions, before describing the various specimens that had been brought in, announced the Pacific Beach Flower Show which is to be held July 3 to 7, and urged the Association to make an exhibit.

The meeting adjourned and those present were served delicious refreshments by the House Committee.

W. SINCLAIR, Secretary.

IMPROVEMENT OF GLADIOLUS

Little attention was paid in America to the improvement of gladiolus before 1870, when the first American seedling was introduced. After twelve years of experimenting, Luther Burbank introduced a strain of flowers that was larger and better able to stand the bright sun of California.

If the spike is cut about the time the first flower begins to open, and set in subdued light, the best color will be obtained. When cutting, leave at least four leaves on the plant, taking one or two for foliage. Cut diagonally through the spike, parallel to and immediately above the edge of the uppermost leaf to be left on the plant.

—GLADYS M. BATES.

HERBACEOUS PERENNIAL AND VARIOUS BULBOUS PLANTS FOR SOUTHERN CALIFORNIA GARDENS

By Walter Address

The use of herbaceous perennials has greatly increased in the last few years. An extensive planting of these plants, especially on large private estates, will considerably decrease the cost of maintenance and reduce to some extent the water bills—quite a problem on some places. Perennial plants do not require as much care and continuous cultivation as annuals. A good mulch of peat, bean straw or old stable manure is much better. Phlox especially dislike to be disturbed during the growing season. The introduction of many plants from China, Japan, Australia and South Africa has added many treasures to our gardens. The more plants are introduced into a perennial border, the more interesting such a border will be, either to the owner or his visitors. Elaborate planting charts published in English and American garden books, are useless for our gardens. To mention only a few: *Paenies*, *Dicentra spectabilis* (bleeding heart), *Physalis franchetti*, Oriental poppies, etc. Never plant less than three or five of a kind in a group. To produce a color effect, flowers of the same color and shade should be planted together. For example: *Delphinium*, *Agapanthus umbellatus*, *Trachaelium coeruleum* and *Agatheas* in front. For a division a colors, to prevent a clash, use white: *Phlox*, *Gypsophyla paniculata*, white *Asters*. Shrubs should always be used for a background: *Arbutus unedo*, *Abelia*, *Grevillea Thelemanniana*, *Prunus pissardi*, *Viburnum tinus strictum*, *Pyracanthas*, *Cydonia japonica*, *Prunus persica* (fl. Peach), *Pyrus floribunda Halliana*. Do not plant *Acacias*, *Leptospermums*, *Buddleia*, *Callistemon*, *Escallonia*, *Genista*, *Pittosporums*, etc. *Hypericum moserianum* and *Cantua buxifolia* are never out of place in a herbaceous border.

Avoid straight lines as much as possible. The tallest perennials belong in the background: *Helianthus multiflorus*, *Helenium Bigelowii*, *Hollyhocks* (biennial), *Artemisia*, *Cephalaria* (yellow *scabiosa*), *Delphinium*, *Anchusa Ithalica*, *Solidago* and *Thalictrum dipterocarpum*. In the middle of the border plant: *Agapanthus*, *Alstroemeria chilensis* (a splendid cut flower), *Columbine*, *Coreopsis* (Perry), *Liatris*, *Montbretia* (Sept.), *Pentstemon* (barbatus), *Physostegia virginica*, *Tritoma* and *Veronica spicata* (very draught resistant). Dwarfier subjects belong to the front: *Armeria*, *Dianthus barbatus*, *Gerbera* hybrids, *Heuchera sanguinea*, *Lychnis*, *Rudbeckia Newmanii*, *Tradescantia virginica*.

Physostegia and *Tradescantias* require rich moist soils.

Bare interspaces in the border are unsightly and unnecessary; call upon as reserves: annual *Chrysanthemum*, snapdragons (in separate colors), stock, *salpiglossis*. Start most of the annuals mentioned in September and October for an early winter display, with the exception of *Salpiglossis*. *Pompon Chrysanthemums* are indispensable for autumn cut flowers and for cutting in November and December. A careful selection of the different kinds—early, midseason, late—should be made, so as not to have too many in bloom at the same time, a very common mistake.

Near trees, in shade or half-shade, plant *Acanthus mollis*, *Columbines*, *Tellima grandiflora*; in the fall set out *Scilla Hispanica*, *Leucojum vernum* (very much in demand by florists), a lovely native bulb. *Funkias* and *Crinums* are old fashioned but nevertheless very beautiful. More of our native bulbs should be planted, they are better known in European gardens than in California. Mr. Carl Purdy, Ukiah, Calif., is known all over the world for his California bulbs and plants. Directions given in his catalogue are very simple, everyone can understand them. Instructions how to grow our native lilies especially are very interesting. Dutch and Spanish *Iris* should also be planted in the fall in the perennial border. Set them out in groups of not less than 12. They do better if not taken up every year.

One of the very best perennial plants (evergreen) is the *Hemerocallis*: *Florham*, light yellow; *Middendorffii*, golden yellow; *Thunbergii*, sulphur yellow, late flower; *Kwanso*, double orange. The *Iris* is becoming more popular due, I believe, to our frequent flower shows. The *Iris* is divided into three classes:

Bearded, pogonis, lime lovers.

Beardless, apogon, Evansia, lime haters.

Bulbous.

The following named varieties should be kept rather dry after their flowering period and are very much at home in Southern California gardens:

Arenaria (sand loving), *flavissima*, yellow stripes with purple brown on the claws. Hungary, Russia.

Longipetala var. *Missouriensis* and *montana*.

Spuria, porcelain blue, stems 1-2 ft. Kashmir, E. Asia, Algeria.

Susiana, (mourning), striped, sandy soil, Levant, Persia.

Tectorum fimbriata, lilac blue. China.

Tingitana, 2-3 ft. lilac purple. Tangiers, 1872.

Other interesting varieties are:

Bracteata (furnished with bracts).

Tenax.

Purdyl.

Macrosiphon.

Cristata, pale blue, 6 inch. E. U. S., Ohio, S. Indiana.

Lacustric, half-shade.

Foliosa (hexagona lamansei).

Foetidissima, ornamental red seed pots, Britain.

Fulva (cuprea) drooping standards, copper, purple veins, swamps S. I., Mo., S. Ga., La. Filifolia, thread-like leaved, long stemmed, bulbous, inner segments notched (ref. Western florist).

Germanica: florentina, parisiensis, spectabilis, violacea, vulgaris.

Kaempferi (laevigata, japanese) will bloom in shallow water during the growing season.

Longipetala (Cal.).

Ochroleuca, yellowish white, stems 3 ft. Asia.

Orientalis, snow white, light blue. Japan, Siberia.

Pallida (odoratissima) light blue. Italy, Orient.

Sibirica (meadow plant, rich, damp soil): sibirica, acuta, sanguinea (orientalis), flexuosa (white), graminea (grass-leaved). S. Europe.

Stylosa (unguicularis), winter bloomer, var. colors.

Versicolor (virginica), variegated. Newfoundland, Minn., Ork.

Wilsonii, 3 ft. like siberian, yellow, twice the size of sib.

Irises should either be planted in beds by themselves, or along walks, drives, fences, pools, etc. Most of them require a rest period during the summer, except swamp Iris, like the Iris fulva. Iris pseudocorus will grow in shallow water and increase rapidly.

Should the owner of a garden desire to have a greater variety of perennials and is limited as to space, the following plants can be used as single specimens: Artemisia lactiflora (fine foliage, white flower), Anchusa Italica, Centaurea macrocephala (Caucasus), Cephalaria tartarica (Siberia), Eryngium, Echinops, Rudbeckia laciniata, Helianthus multiflorus, Tha-

lictrum dipterocarpum, all tall growing plants. All these varieties of perennials require very little care and do not need much water.

Deep spading of the ground, preparatory to planting, is essential. The best fertilizer to use is ground, if possible, unsteamed bone meal. Such a border should not be made wider than eight or nine feet. Rehmannia, the herbaceous Salvias (farinacea, leucantha, greggii, involucrata-pink), Phlox and Physostegia should be divided every spring. Other perennials that should be included in the planting of a colorful border are: Michaelmas daisies (perennial aster), Bidens dahloides, Doronicum, Erigeron (Quakeress), Hybrid Gaillardias, Pyrethrums, Lepachys, Leptosyne maritima (native San Diego), Lobelia cavanillesii (very drought resistant), Meconopsis cambrica, Phlomis fruticosa, Pentstemon spectabilis, Scabiosa caucasica. In large gardens the native Trichostema, lanatum ortopodium, should be made one of the features of early spring flowering plants. Matricaria caucasica is an early flowering perennial, furnishes an abundance of cut flowers and requires hardly any care.

To prevent an unsightly appearance of the perennial border in early spring begin early, September, with your bulb plantings. The first ones to go into the ground are Antholyza, Montbretia and baby Gladiolus. For a color effect never plant less than a dozen in a clump. Try some of our natives—Camassia esculenta, scilla like 4 inches apart, 4 inches deep. Chlidanthus, yellow, very fragrant, from Buenos Aires. Dierama pendulum (pulcherrimum) from South Africa, 4 inches deep. The Alstroemeria aurantiaca (var. lutea, splendens), orange colored flower, 3-5 feet, sandy loam and peat, little shade. Hyacinthus candicans (Galtania) from South Africa, try them in front of Gladiolus for a change and surprise. Leucojum vernum for naturalizing under trees. Lapeyrousia cruenta rosea (Anomatheca cruenta), iridaceae from South Africa, freesia-like, scarlet, sandy soil, good drainage. Ismene calathina (Hymenocallis), Peruvian daffodil, white, fragrant, Brazil, West Indies, also called Cuban lily. Tigridia Pavonia, iridaceae, 4 inches deep, 6 inches apart, from Mexico and Guatemala. Sparaxis tricolor, irideae, South Africa, Morea, iridoides, Cape, Abyssinia. Ornithogallum, clusters of white flowers on short stems, umbellatum, Star of Bethlehem, arabicum (Spain, Egypt), fine cut flower, full sun, dry soil, fine for naturalizing. Watsonia (Meriana) related to Gladiolus, irideae from South Africa, Madagascar. If the soil is heavy and the drainage not perfect, a good deal of coarse sharp sand, about one third, should be mixed with soil. To avoid disappointment better raise the beds a few inches and mix some peat or leaf mould with the soil, this extra work will save water later on.

Where the cost of water has to be taken into consideration and a good deal of ground to be planted for color effect the following named plants will be found useful. They require a minimum of care and on the average should not be watered more than twice a month along the coast respectively: *Alyssum saxatile*, *Arabis alba*, *Aubretia*, *Cerastium*, *Dianthus plumaris*, *Erysimum Allioni*, *Helianthemum*, *Iberis gibraltarica*, *Linum perenne*, *Lithospermum*, *Nepeta mussini*, *Papaver nudicaule*, *Saponaria officinalis*, *Sedum-spectabile splendens*, *variegatum*, *Sieboldi*, *kam-schataticum*, *Middendorffianum*, *Sempervivum*, *anachroideum*, *Statice*, *Thymus*, *Veronica spicata* and our native *Zauschneria californica*.

Near or around the edges of an informal pool plant ornamental grasses: *Pennisetum ruppelianum* and *longistylum*; the Japanese grass *Carex*; *Erymus glaucus*. *Tritomas* are very effective near the water, also *Agapanthus umbellatus*. Plant them in groups of not less than three. To cover the edges of a cement pool, to prevent that wash bowl effect, a very inartistic sight, plant as near as possible to the water's edge: *Plumbago larpentae*, *Thymus citriodorus*, *Veronica prostrata*, *Saponaria ocyroides*, *Nepeta mussini*, *Helianthemum mutabile*, *Erigeron mucronatum*, *Aubretia*, *Alyssum saxatile compactum*. *Arundo Donax* soon will become a nuisance in the garden and should be excluded from the planting list.

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In reply to many inquiries as to what we are doing for the Wild Flowers I contribute this letter in reply to one received from Los Angeles. I hope that it explains the situation in this letter in reply to the one already published.—F. G. W.

Mrs. Susan W. Hutchinson,
724 South Orange Drive,
Los Angeles, California.

Dear Mrs. Hutchinson:

The wild flower situation is one that is affecting us all very deeply. Our educational effort at the Annual Flower Show was to show how much injury the wild grasses are doing in our back country that perhaps is not so closely cultivated as yours in Los Angeles County.

The automobile roads, it is true, have reduced the flowering chaparral of our moun-

tains and have greatly affected the bee pastures. But the dense acres of brome-grass, wild oats, and six weeks fescue, waving in the wind-blown meadow lands send a continuous stream of grass seed up the canyons through the flower areas.

We had a grass exhibit with a good sign from Mr. Carroll DeWilton Scott, City Supervisor of Nature Study and at the front his most prominent remark in huge letters on "Who Killed Miss Wildflower" in the Sunday Union and at the floral display was: "These immigrant grasses more than people are destroying the wild flowers—gone never to return."

I have read your letters in Touring Topics and feel warmly toward you for the way in which you are arousing the consciousness of the people to what they will lose if the natural life is not conserved.

Several organizations—the Woman's Federation, the Business and Professional Woman's League and the City and County Schools have asked me to co-operate with them and my undying topic is "Keep California Beautiful," and its highways a source of pleasure to those who need to recreate (and that is everybody).

Your letter I sent a copy of for publication to R. R. McLean, Commissioner of Horticulture and Editor of "The California Gardens." He is using every endeavor with the County Supervisors and with the State Legislature to conserve all the wild flowers in state parks (Beach Parks, Desert at Borego, Thousand Palms Canyon, Washingtonia Palm especially) and 150 feet along the highways, but eventually the law, we hope, will cover the case of to leave the plants alone and let them take care of themselves.

A modified law in that case will not work as well as "Hands Off."

On several occasions we have corresponded with Mr. J. B. Feudge, President of the Southern California Parish Botanical Society, and he is anxious about the destruction of rare cacti near the Mexican Boundary and the San Diego River, as well as of the vandalism in shipping plants for horticultural purposes. All around there is coming a host to fight the battle for the flowers and we will hope to win.

I send a copy of our Ordinance No. 333, the outcome of the activities in the boundary states that is becoming effective, Arizona as well as California.

The San Diego Floral Association is doing things in the line of saving the succulents and wild rock gardens. Eventually something is to be done for the permanent good of our floral fields all over.

Most cordially,

(Signed) FIDELLA G. WOODCOCK,
Curator of Plants.,
May 9, 1929.

HUNTINGTON GARDENS
As Seen By
Messrs. Jerabek and Middlebrook

If any reader of California Garden has not yet had the pleasure of visiting Huntington Gardens at San Marino and could realize what a treat awaits him there, such pleasure would not willingly or long be postponed. Regardless of how little or how much one knows about botany, there is a treat for each according to his knowledge.

We first visited the Cactus Garden containing twenty-two acres of varying sizes from the giant *Pachycereus marginatus*, twenty-five years old down to the pigmy *Ariocarpus fissuratus* (Living Rock). At this time of year the garden is a riot of bloom and fruit. Some of the rarest specimens were at their best. The *Cephalocereus senilis* (Old Man Cactus) seems to have the greatest struggle for existence. The taller it grows the more the birds seem to attack it. All the long white hairs from one side of one plant had been pulled out and near the top of the tallest one a couple of sections had been dug out for nests. These had been filled in and the old man seemed none the worse for his experience except for looks. It was a rare experience for us to see Old Man Cactus in flower.

In the Cactus Garden are many varieties of *Agava*, *Aloe*, *Cotyledon*, *Crassula*, *Euphorbia*, *Echeveria*, *Dasyllirion*, *Dracaena*, *Dyckia*, *Gasteria*, *Haworthia*, *Rocoea*, *Sedum*, *Semprevivum* and *Yucca* and a fine specimen of *Colletia spinosa*. To describe the Cactus Garden even partially, seems much like making a list from an encyclopedia.

Mr. Hertrick is carrying on many interesting experiments, some of the results of which are already in evidence, while others may require months even years to mature. The process of cross fertilization of genera as well as species was interesting to watch.

We were privileged also to deliver to Mr. Hertrick from Mrs. Greer a selected *Aloe* from her garden. Mrs. Greer will no doubt find it in genial surroundings upon her next visit to Huntington Garden.

Anyone interested in Palms will find a large variety and an opportunity for study and comparison. There are many *Jubaea spectabilis* (Wine Palm) that are threatened with extinction in their native country, Chile. The *Phoenix glauca* (Blue Phoenix hybrid) is a beautiful palm and the *Livistona olivae-formis* with its blue olive-shaped fruit and but few spines catches one's attention as does the *Trithrinax brasiliensis* with long spines all around the trunk. There are many varieties of Cycads and other varieties of palms that also command attention. Even with such abundance there is room for more, and they were expect-

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ing the delivery of a palm from Miss Sessions' garden, selected by Mr. Hertrick on his recent visit to San Diego.

To those interested in rare single species there is a treat in locating *Tupidanthus calyptratus*, *Sciadopitys verticillata* (Umbrella Pine), *Virgilia capensis*, *Hovenia dulcis*, *Bischofia trifoliata* and *Davidia delucrata*.

Then there are certain species of larger families such as *Araucaria imbricata* (Monkey Puzzle) that refuses to grow in San Diego; *Agathis robusta*, wide leaf pine about 100 feet high; *Buddleia alternifolia*, a beautiful shrub in full bloom; *Cephalotaxus Harringtonia* (Yew-like); *Crotalaria agatifolia* (Rattle Box); *Cryptomeria araucaria*, resembling each as name implies; *Chrysophyllum Cainito* (Star Apple), a handsome tree; *Harpephyllum caffrum*, (Kafir Plum South Africa); variegated variety of Loquat; *Ruscus aculeatus* (Butchers' Broom), the flower and fruit grow from the center of the leaf-like branches (*cladodia*); *Sapindus saponaria* (Soapberry); *Stenocarpus sinulatus*; *Sequoia sempervirens glauca*, with its attractive bluish tint.

It was a little late in the season to see at their best the many orchids, camellias, azalias, roses, and certain flowering trees yet all retained much of their beauty.

RAINBOWS RAMPANT

It is usual in Iris shows to classify by color and it is always a source of amusement and wonderment to the layman to listen to heated arguments between experts as to the proper placing of various specimens.

Scientists recognize that there are more than a million gradations of color. Such are the variations in individual sensitiveness to vibrations that no one person can see more than a relatively small part of them. So it is just possible that persons we call "color blind" may have their range of appreciation placed differently than the average person and this is borne out by the fact that often they are sensitive to color vibrations which make no impression on the normal eye.

Many years ago a French botanist, De Candolle, was working on the theory that in flowers there were two extremes of color, the yellow and the blue and if you got one or the other true in a flower you would be unable to get the other. His ideas were apparently correct but have had to be modified to admit that there are no true colors in the vegetable kingdom.

Flowers which contained the basic blue color, he called Cyanic; the yellow, Xanthic. We have substituted Goldenyellow for yellow, and ultramarine for blue.

The theory goes on to state that while both groups may produce red flowers yet there will be a difference in that red, on the cyanic or blue side limited by crimson red, and on the yellow or Xanthic by scarlet red.

Yellow, however, seems to exist in both groups which is not surprising when you know that it is derived from the elimination of blue from chlorophyll, also that in the spectrum it occupies a median position.

It would almost seem that I. Germanica or Bearded Iris must belong to both groups so varied are the color classifications in different catalogues. A study of them will convince you that Iris growers apparently are super-men in that they know or profess to know nearly all of the million possible colors in all of their possible combinations.

You hear "riot of color" spoken of and if you are willing to risk optical indigestion, just glance at this list of color combinations picked at random from a current Iris catalogue.

Violet-rose, red-purple, citron-yellow, red dahlia-carmine, lavender-blue, lilac-pink, blue-violet, red-brown, velvety-violet, russet-yellow, rosy-salmon, golden-yellow, blue-purple, olive-gold, madder-violet, morroco-red, blue-mauve, raisin-purple, buff-grey, wisteria-violet, ruby-purple, violet-carmine, azure-blue, rose-lilac, primrose-yellow, red-tan, claret-purple, lobelia-blue, rosy-bronze, cattleya-rose, celes-

tial-blue, vivacious-lavender, mallow-pink, chestnut-brown, rose-pink, copper-crimson, campanula-violet, tan, magenta, pansy-purple, blue-lilac, prune-purple, royal-purple, lemon-yellow, rose-crimson, Chinese-violet, silver-blue, manganese-violet, rose-madder, analine-blue.

Take this chromatic pot-pourri, add the brilliant glow of orange beards, season with olive-brown reticulations, lavender pencillings, over-flushes and undertones of lilac and blue, suffusions of rose, tinges of ivory, sheens of silver, and splotches of copper and bronze and serve.

Several hundreds of shades and hues were mercifully omitted but there should be enough to suggest that the Iris is worthy of further study by the lover of color, and that there is a legitimate reason for differences of opinion in the classifying of exhibits.

CORALINN B. TUTTLE.

SNAP DRAGONS AND A SPRAY FOR RUST

The beautiful spikes developed in snapdragons by florists are the life of one plant, and would not be desirable in a garden. There are three types, tall, half dwarf and dwarf, and the half dwarf is considered the best type for the garden. The tall, or majus varieties have a finer and greater display of bloom.

The destructive rust on the plants in full bloom may be treated in the earlier stages of growth, using a spray of bordeaux mixture as a preventative. The last application should be given just before the buds begin to show color, but if applied when the plants are in bloom, it will disfigure with a bluish stain. Rich, well drained soil is the most healthful for the snap dragon.

—GLADYS M. BATES.

HARDY TUFTED PANSIES

Tufted pansies have a greater hardiness and profusion of bloom, the tuft part consisting of a great number of stems springing from the base of the plant after its first bloom from seed to replenish the supply. If the old stems are cut back when they grow a little straggly, the tufting process will make nice neat compact bushes.

Viola bosniaca, a crimson type or clear magenta, has hybrid forms and comes true from seed. Viola grashlms, also hybridized into a number of colors, some of which are very rich and velvety. Viola Hasselmere comes close to being pink, with some very pretty blue forms among the seedlings, and is a pretty, small and profusely flowered viola.

Lord Nelson, a rich deeply colored hybrid viola, blooms the first year from the seed, as do all of these forms, if given a reasonably early start before the hot weather starts. Favorite forms of the violas are easily propagated from cuttings in wet sand in midsummer.

—GLADYS M. BATES.

ANYONE CAN HAVE A LILY POOL

Practically everyone loves a water garden, for the quiet surface that reflects tree-top and sky, the sweetness of aquatic plant, the shimmer of darting goldfish, seem to call up in all who come near it a sense of peace. But it is so often thought that one must have a large space and elaborate garden design in order to have this loveliness. In the fascinating souvenir year book of the Annual Chicago Garden and Flower Show of this year, is a short article on the subject of Lily Pools, by August Koch, chief florist of the West Park System, Chicago. "Anyone who has sunny space can have a lily pool," says Mr. Koch, "even though the space is on an apartment roof or in a city back yard. Any watertight wooden container 16 or more inches in depth can be made into a lily pool and may be sunken in the ground or set where wanted. Every pool large or small, should have goldfish to prevent mosquitos breeding, and to help keep the pools clean from minor vegetation such as algae, etc. For good bloom, a lily pool must have full sunlight most of the day.

"The simplest pool is made from a wooden lard or candy pail, a tub, or a half barrel. Three or more such containers grouped together and sunk level with the surface of the ground make a most attractive feature in a garden. The pool should be filled with six to eight inches of very rich soil. After the lilies or other plants are planted in this, fill in an inch of clean, sharp sand, then four inches of rather sun-heated water. Keep water at this depth until the very hot weather of July, then increase the depth to eight or ten inches for the rest of the season. Water lilies come into bloom most quickly in shallow water; but must have deeper water during hot weather.

"Larger pools may be made of concrete, of stones chinked with cement, or of puddled clay. They may be filled with soil as small pools are, or may have the plants grown in tubs or boxes set on the bottom of the pool. In the huge formal lily pools of Garfield and Douglas Parks—the largest formal lily pools in the country so far as we can learn—the plants are grown in boxes 30x30x19 inches,

filled with soil prepared by composting sod and manure, layer upon layer. In these pools the water is kept at a depth of four inches over the surface of the boxes during the early season and is increased to 10 or 14 inches during the heat of summer.

"For bordering naturalistic pools," Mr. Koch adds, "the West Parks use *Iris pseudacorus*, cat-tails, sedges, lythrum, marshmallows, arrow-head, pickerel weed, and other native waterloving plants. For accent purposes in the formal lily pools, the West Parks use *Thalia*, papyrus, and umbrella palm. For the benefit of the goldfish we use a few water hyacinths each season, for the goldfish like to deposit their eggs among the roots of this plant."—Christian Science Monitor.

STAR DAHLIAS

Star Dahlias are deservedly one of the most popular of all classes for planting in flower beds and borders and for cultivation for the supply of cut blooms. They reach a height of 3 to 4 feet, and flower very freely throughout a long season from July onwards. The blooms are only semi-double, but many charming shades of color are represented, and their long stalks render them ideal for decorative work when cut. They look well among other tall plants in the herbaceous border.

As with all other types of Dahlia that bear single or semi-double flowers, and produce seeds freely, it is a matter of importance to remove faded blooms to prevent the formation of seed, otherwise the blossoming season of the plants will be shortened considerably. If, however, the plants receive this attention, are planted in well-tilled ground, spaced at 2 to 3 feet apart and are adequately staked, they will provide an attractive and prolonged display of bloom.

When first exhibited some years ago the Star Dahlias immediately took the public fancy, and ever since they have increased in popular favor. New varieties have appeared every year, and there is now a considerable number of them.—Popular Gardening.

The article in this issue entitled "Herbaceous Perennial and Various Bulbous Plants for Southern California Gardens," by Walter Andrews, will be followed in the July issue by Part Two entitled "Herbaceous Plants and Bulbs for Southern California Gardens." This is an alphabetical arrangement, with much new information as regards growing conditions, native habitat, and year of introduction. It will be well worth a place in a botanical library.



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